Lampiran 5 Perhitungan Analisis Kovarian (ANKOVA) Dalam Rancanga Acak Kelompok (RAK)

Tabel 1. Data kadar glukosa darah (mg/dl) Mencit sebelum perlakuan

Perlakuan	Kelompok					Total	Rerata
	1	2	3	4	5		
	X1	X2	X3	X4	X5		
K-	97	91	81	76	86	431	86,2
K+	191	200	177	175	164	907	181,4
C	189	165	170	164	162	850	170
B	155	152	191	166	180	840	168
A	211	172	182	172	195	932	186,4
Total	839	780	801	753	787	3960	705,8

Tabel 2. Data kadar glukosa darah (mg/dl) Mencit sesudah perlakuan dengan air perasan bawang lanang (*Alium sativum*) 21 hari

Perlakuan	Kelompok					Total	Rerata
	1	2	3	4	5		
	Y1	Y2	Y3	Y4	Y5		
K-	89	84	91	80	100	444	88,8
K+	180	198	176	200	186	940	188
C	90	126	90	88	96	490	98
B	90	93	110	93	90	476	95,2
A	87	87	98	96	113	481	96,2
Total	536	588	565	557	585	2831	566,2

Perhitungan Analisis Kovarian (Ankova) kadar glukosa darah mencit

A. Pengamatan XX (sebelum perlakuan)

1. Menghitung faktor koreksi (FK)

$$FK = \frac{\sum X^2}{r.t}$$

$$= \frac{3960^2}{5X5}$$

$$= 627264$$

2. Menghitung Jumlah Kuadrat (JK)

$$JK_{total} = \sum X^2 - FK$$

$$= (97^2 + 91^2 + 81^2 + \ldots\ldots\ldots\ldots + 195)^2 - FK$$

$$= 666144 - 627264$$

$$= 38880$$

$$JK_{ulangan} = \frac{(\sum X1^2)+(\sum X2^2)+(\sum X3^2)+(\sum X4^2)+(\sum X5^2)}{t} - FK$$

$$= \frac{3140295}{5} - 627264$$

$$= 795$$

$$JK_{perlakuan} = \frac{(\sum X1^2 + \sum X2^2 + \sum X3^2 + \sum X4^2 + \sum X5^2)}{r} - FK$$

$$= \frac{3\ 305134}{5} - 627264$$

$$= 33762,8$$

$$JK_{galat} = JK_{total} - (JK_{ulangan} + JK_{perlakuan})$$

$$= 38880-(795 + 33762,8)$$

$$= 4322.2$$

3. Menghitung $JK_{perlak} + JK_{galat}$ (JK_{P+G})

$$JK_{P+G} = JK_{perlakuan} + JK_{galat}$$

$$= 33762,8 + 4322.2$$

$$= 38085$$

4. Menghitung JK $_{ulangan\ +}$ JK $_{galat}$ (JK_{U+G})

JK_{U+G} = 795 + 4322.2

= 51172

B. Pengamatan XY(sebelum dan sesudah perlakuan)

1. Menghitung faktor koreksi (FK)

$$FK = \frac{(\sum X.\sum Y)}{r.t}$$

$$= \frac{3960\ X\ 2831}{5X5}$$

= 448430,4

2. Menghitung Jumlah Kuadrat (JK)

JK $_{total}$ $= \sum(X.Y) - FK$

= (97 X 89) + (91 X 84) +(76X91)+…….+(195 X113) - FK

= 462486 – 448430.4

= 14055.6

JK $_{ulangan}$ $= \frac{(\sum x.\sum y)+\cdots\cdots\cdots\cdots\cdots(\sum x.\sum y)}{t} - FK$

$= \frac{2239123}{5} -$ 448430,4

= - 605.8

JK $_{perlakuan}$ $= \frac{(\sum x.\sum y)+\cdots\cdots\cdots\cdots\cdots(\sum x.\sum y)}{r} - FK$

$= \frac{462486}{5} -$ 448430,4

= 13284,8

JK_{galat} = JK $_{total}$ – ($JK_{ulangan}$ + $JK_{perlakuan}$)

= 14055.6 – (- 605.8+ 13284,8)

= 1376.6

3. Menghitung JK $_{perlak}$ + JK_{galat} (JK_{P+G})

JK_{P+G} = $JK_{perlakuan}$ + JK_{galat}

= 13284.8+ 1376.6

= 14661.4

4. Menghitung $JK_{ulangan}$ + JK_{galat} (JK_{U+G})

JK_{U+G} = - 605.8+ 1376.6

= 869.8

C. Pengamatan YY(sesudah perlakuan)

1. Menghitung faktor koreksi (FK)

$$FK = \frac{\sum X^2}{r.t}$$

$$= \frac{(2831)^2}{5X5}$$

= 320582

2. Menghitung Jumlah Kuadrat (JK)

JK_{total} = $\sum X^2 - FK$

= $(89^2 + 84^2 + 91^2 + \ldots\ldots\ldots\ldots + 113)^2$ - FK

= 358195 – 320582

= 37613

$$JK_{ulangan} = \frac{(\sum X1^2)+(\sum X2^2)+(\sum X3^2)+(\sum X4^2)+(\sum X5^2)}{t} - FK$$

$$= \frac{1604739}{5} - 320582$$

= 365.8

$$JK_{perlakuan} = \frac{(\sum X1^2 + \sum X2^2 + \sum X3^2 + \sum X4^2 + \sum X5^2)}{r} - FK$$

$$= \frac{1778773}{5} - 320582$$

= 35172.6

JK_{galat} = JK_{total} – ($JK_{ulangan}$ + $JK_{perlakuan}$)

= 37613 – (365.8 + 35172.6)

= 2074.6

3. Menghitung JK $_{perlak}$ + JK$_{galat}$ (JK$_{P+G}$)

$$JK_{P+G} = JK_{perlakuan} + JK_{galat}$$

$$= 35172.6 + 2074.6$$

$$= 37247.2$$

5. Menghitung JK $_{ulangan}$ + JK $_{galat}$ (JK$_{U+G}$)

$$JK_{U+G} = 365.8 + 2074.6$$

$$= 2440.4$$

D. Menghitung db awal

1. db ulangan = r-1=5-1=4
2. db perlakuan = t-1 = 5-1= 4
3. db galat = (rt-1)-(t-1)= 24 - 4=20
4. db total = (rt-1) = 25-1=24

E. Menghitung JK Regresi

1. JKR $_{galat}$ $= \frac{\text{JK galat xy}^2}{\text{JK galat xx}}$

$$= \frac{1376.6^2}{4322.2}$$

$$= 438.4$$

2. JKR $_{P+G}$ $= \frac{(\text{JKP xy} + \text{JKxy})^2}{Pxx + Gxx}$

$$= \frac{(2440.4)^2}{6276.4}$$

$$= 24103$$

3. JKR$_{U+G}$ $= \frac{(\text{JK u xy} + \text{JK Gxy})^2}{Uxx + Gxx}$

$$= \frac{(869.8)^2}{51172}$$

$$= 14.78$$

F. Menghitung JK regresi terkoreksi (JKTGR)

1. JKGTR$_{galat}$ = Gyy $- \frac{(\text{Gxy})}{\text{Gxx}}$

= JKyy – JK regresi

= 2074.6- 438.4

= 1636.2

2. JKGTR $_{P+G}$ $= (Pyy + Gyy) - \frac{(Pxy+Gxy)^2}{Pxx + Gxx}$

= $JK_{yy(p+g)} - JK_{regresi\ yy\ (p+g)}$

= 37247.2 - 1636.2

= 35611

3. JKGTR $_{U+G}$ $= (Uyy + Gyy) - \frac{(Uxy+Gxy)^2}{Uxx + Gxx}$

= $JK_{yy(u+g)} - JK_{regresi\ yy\ (u+g)}$

= 2440.4 – 14.78

= 2425.6

G. Menguji perlakuan dan ulangan terkoreksi (MPT)

MPT $= [(Pyy + Gyy) - \frac{(Pxy+Gxy)^2}{Pxx-Gxx}] - [Gyy - \frac{Gxy}{Gxx}]$

= $JKGT_{P+G}$ - $JKGT_{galat}$

= 35611– 1636.2

= 33974.8

MUT = $[(Uyy + Gyy) - \frac{(Uxy+Gxy)^2}{Uxx-Gxx}] - [Gyy - \frac{Gxy}{Gxx}]$

= $JKGT_{P+G}$ - $JKGT_{galat}$

= 2425.6– 1636.2

= 789.4

H. Menghitung db terkoreksi

1. Db galat = (r-1)(t-1)-1

= (5-1) . (5-1) - 1

= 15

2. Db p+g = r(t-1)-1

= 5(5-1)-1

= 19

3. Db perlakuan = db p+g – db galat

= 19 – 15

= 4

I. Menghitung KT Galat Murni (KTGM)

1. KTGM $_{galat}$ $= G\frac{Gxy-(Gxy)Gxy}{db\ galat}$

$= \frac{JK\ regresi\ terkoreksi}{db\ galat}$

$= \frac{1636.2}{15}$

= 109.62

2. KT $_{perlakuan}$ $= \frac{JKGT}{db}$

$= \frac{35611}{4}$

= 8902.7

3. KT $_{ulangan}$ $= \frac{JKGT}{db}$

$= \frac{2425.6}{4}$

= 606.4

J. Table Ankova

Sk	Db	JK			jk regresi	db	Jk RGT	db	KTGM
		xx	xy	yy					
Ulangan	4	795	-605.8	365.8					
Perlakuan	4	33762,8	13284,8	35172.6					
Galat	20	2074.6	1376.6	2074.6	438.4	1	1636.2	15	109.62
P+G	24	4322.2	14661.4	37247.2	24103	1	35611	19	
Menguji perlakuan terkoreksi							33974.8	4	8493.7
U+ G	24	51172	869.8	2440.4	4200.7	1	2425.6	15	
Menguji ulangan terkoreksi							789.4	4	197.35

K. Mencari F hitung Terkoreksi

$$\text{F hitung perlakuan terkoreksi} = \frac{\text{KTGM (MPT)}}{\text{KTGM (G)}}$$

$$= \frac{33974.8}{109.62}$$

$$= 309$$

$$F_{tabel} = 3.06$$

$$\text{F hitung ulangan terkoreksi} = = \frac{\text{KTGM (MPT)}}{\text{KTGM (G)}}$$

$$= \frac{789.4}{109.62}$$

$$= 7.20$$

$$F_{tabel} = 3.06$$

$F_{hitung} > F_{tabel}$ pada taraf signifikan 5% dengan demikian H0 di tolak dan H1 diterima dapat disimpulkan adanya pengaruh pengaruh pemberian air perasan bawang lanang

L. Mencari BNT 5%

BNT 5% $= t_{0.05}$ (dbG) Sd

$$= \frac{\sqrt{2\text{KTGM}}}{r}\left[1+\frac{\text{JKperlakuan}}{(t-1)(\text{Jk galat})}\right]$$

$$=\frac{\sqrt{2(109.62)}}{5}\left[1+\frac{33762{,}8}{(5-1)(2074.6)}\right]$$

$$= \sqrt{222.309)}$$

= 14.9

BNT 5% = $t_{0.05}$ (15)(sd)

= 2.131 X 14.9

= 31.7

M. Menghitung perlakuan rata-rata terkoreksi

1. b $= \frac{Gxy}{Gxx}$

$$= \frac{1376.6}{2074.6}$$

= 0.66

2. Menghitung $\bar{x}$ (rata-rata)

$$\bar{x} = \frac{\sum x}{r.t}$$

$$\bar{x} = \frac{3960}{5.5}$$

= 158.4

N. Tabel perlakuan rata-rata

Rata-rata KDG sebelum perlakuan (xi)	Penyimpanan $\bar{x}_i$ -$\bar{\bar{x}}$	Koreksi by.x($\bar{x}_i$-$\bar{\bar{x}}$)	Rerata KDG Setelah perlakuan $\bar{y}_i$	Rerata KDG terkoreksi($\bar{y}_i$ - koreksi)
86,2	-72.7	-47.9	88,8	135.9
181,4	22.6	14.9	188	173.1
170	11.6	7.6	98	90.4
168	9.6	6.3	95.2	88.9
186,4	28	18.4	96.2	77.2

Keterangan x= 158.4
b= 0.66

O. Ringkasan uji BNT 5% dari penurunan kadar glukosa darah dengan perlakuan pemberian air perasan bawang lanang (*Alium Sativum*).

Perlakuan	Rerata	Notasi BNT 5%
K-	88,8	a
B	95.2	a
C	96.2	a
A	98	a
K+	188	b

Lampiran 6. Gambar Alat Dan Bahan

Gambar 1. Timbangan digital dan Stirer

Gambar 2. Glukometer dan Strip Glukotest

Gambar 3. Alat Bedah Minor

Gambar 3. Alat Bedah dan Papan sesi

Gambar 5. Micropipet

Gambar 6. Air perasan bawang lanang (*Allium sativum*)

Gambar 7. Bahan untuk pembedahan

Lampiran 7. Perlakuan penelitian

Gambar 1. Penyuntikan STZ

Gambar 2. Pengukuran kadar glukosa darah

Gambar 3. pembedahan